

Unengaged head in primigravidae, mode of delivery and outcome (a case-control study) in Dongola—Sudan (2019)

Nahid Abdalla Salim¹, Ismail Satti², Abdalhafiez Osman Mahmoud³

¹Assistant Professor, Dongola University, Sudan, ²Assistant Professor, King Khalid University, Abha, ³Associate Professor, Kassala University, Sudan, Saudi Arabia

ABSTRACT

Background: Child birth is difficult period and associated with strenuous stress for the birth attendants as well, the parturient ladies, especially in primigravidae whose pelvis has not been tested. **Methods:** A prospective case-control study at Dongola maternity hospital. To assess mode of delivery and outcome in primigravidae with unengaged head. The study included 248 primigravidae at term, singleton, and in labor, divided into case and control groups equally, unengaged and engaged head. **Results:** The overall results among both case and control group revealed no difference in mode of delivery, vaginal delivery was (77.4%) and (83.9%), respectively. The significant findings were: head position as it was in the case group 24.2% O.A, 58.1% O.T, and 17.7% O.P. The corresponding figures in control group were 29%, 64.5%, and 6.5%. The difference was significant ($P = 0.024$). 91.9% of the case group augmented and 77.4% in the control group ($P = 0.002$). The most interesting significant difference was body mass index. in the control group 3.2% had a BMI of $<20 \text{ kg/m}^2$, 50% had a BMI 20–25 kg/m^2 , 16.8% had a BMI 25–30 kg/m^2 , and 30% had a BMI $>30 \text{ kg/m}^2$. In the cases, group were 3.7%, 31%, 25.3%, and 40% sequentially with significant difference ($P = 0.011$). **Conclusion:** With good conduction of labor, there were no difference in mode of delivery and outcome in primigravidae with unengaged fetal heads.

Keywords: Contracted pelvis, Dongola, pelvic assessment, primigravidae, Sudan, unengaged head

Introduction

Primigravidae are a high-risk group, high fetal head in primigravida is regarded a risk factor for labor dystocia. Traditional concept in obstetrics states that engagement occurs by the 38th week,^[1] unengaged head at term at onset of labor in primi is not an indication for LSCS per se. Watchful expectancy, appropriate means of intervention, augmentation by oxytocin, ARM, and with the aid of instruments like forceps and ventose, vaginal delivery is possible with minimum maternal and fetal morbidity.^[2] Engagement is the initial cardinal movement of

fetus in the mechanism of labor of a primigravida, however in negro, there is high angle of inclination which may delay engagement until onset of labor.

Engagement is regarded as parameter to determine maternal pelvic capacity to accommodate the fetal head.^[3] In negro, there are many differences in pelvic dimensions. At Mulago Hospital, unengaged fetal heads were more than engaged (87% vs. 12.9%, $P < 0.001$). More ladies had a low symphysis pubis against those with a high symphysis pubis (67% vs. 33%, $P < 0.001$). Change in posture led to a 63.2% increase in the accuracy of determining engagement in mothers with a low symphysis pubis. Engagement at the 38 week of gestation increased significantly.^[3]

Address for correspondence: Dr. Ismail Satti,
King Khalid University, Abha, Saudi Arabia.
E-mail: sattim18@gmail.com

Received: 15-10-2020

Revised: 08-12-2020

Accepted: 21-12-2020

Published: 08-04-2021

Access this article online

Quick Response Code:



Website:
www.jfmprc.com

DOI:
10.4103/jfmprc.jfmprc_2134_20

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Salim NA, Satti I, Mahmoud AO. Unengaged head in primigravidae, mode of delivery and outcome (a case-control study) in Dongola—Sudan (2019). J Family Med Prim Care 2021;10:1254-7.

Engagement can be assessed via different methods, abdominal and vaginal with limitations. The fifth method appears inexact and poorly reproducible.^[4] Progressive descent of the head is assessed abdominally by “fifths” of the head above the pelvic brim (Crichton). Further, 5/5th represent floating head, 4/5th if the head digging the inlet, and 3/5th major enter the brim.^[5]

Physiologically, the uterus is less efficient and contractions may be irregular or hypotonic causing delay in first stage of labor, so there is need for augmentation to regulate and coordinate uterine contractions especially in primigravidae.

Cesarean section was more prevalent in unengaged fetal head in primigravidae. Rising rate of LSCS is under critical review. One of the main reasons of this increase is LSCS in primigravidae with unengaged head which is a frequent finding in obstetric practice.^[6]

Subjects and Methods

Prospective case-control study was carried at Dongola maternity hospital, 248 primigravidae, with engaged and unengaged fetal head, with singleton, term pregnancy in labor were included in this study. Divided into Case group (B) 124 primigravidae with singleton term cephalic pregnancy with unengaged head in labor and Control group (A) 124 primigravidae with singleton term cephalic pregnancy with engaged head in labor. Ethical approval obtained 2018.

Any lady with history of ante partum hemorrhage, medical diseases with pregnancy (diabetes, hypertension, renal, and cardiac), past history of rickets, polio or osteomalacia, history of fracture pelvis, obvious pelvic deformity, evidence of FGR, oligo-polyhydramnios, or congenital anomalies. Postdate > 42 weeks IUFD. Any pelvic tumors (fibroid, ovarian, bowel and pelvic bone tumors) were excluded from the study.

Table 1: Head position in vaginal examination at initial assessment show the significant difference between cases and control groups ($P=0.024$)

Head position	Cases number	Cases percentage	Control number	Control percentage
OA	30	24.2%	36	29%
OT	72	58.1%	80	64.5%
OP	22	17.7%	8	6.5%
Total	124	100%	124	100%

Table 2: Length of the first stage; the difference is not significant ($P=0.774$)

First stage labour duration	Control number	Control percentage	Cases number	Cases percentage
1-6 h	92	74.2%	90	72.6%
6-12 h	32	25.8%	34	27.4%
Total	124	100%	124	100%

The management of labor was carried out as routine and followed with Partogram, clinical pelvic assessment done by senior doctors. Medical augmentation and surgical intervention was observed and data analyzed by (SPSS) version 20, with P value of < 0.05 counts as statistically significant.

Results

In our study, 248 primigravidae were studied, divided into case and control groups, each consist of 124 primigravidae. Regarding demographic results such as age, parity, gestational age, there is no differences.

In this study, 64.5% of the case group have adequate pelvis while the figure is 67.7% in the control group ($P = 0.591$) [Figure 1]. The head position on vaginal examination in the initial evaluation was statistically significant ($P = 0.024$) [Table 1].

Interestingly, duration of the first stage of labor in hours was statistically insignificant ($P = 0.774$) as shown in Table 2 which surprised us as we expected prolonged first stage in the case group. But could be related to the amazing results in Figure 2 which revealed statistically significant results in augmentation of labor ($P = 0.002$).

The main result in this study is the mode of delivery which is represented in Table 3, in the case group were 77.4% delivered vaginally, 9.7% by forceps, and 12.9% emergency cesarean section, the difference was statistically insignificant ($P = 0.429$). It is clear in Table 4 that BMI has an impact on the mode of delivery, as the difference was statistically significant ($P = 0.011$).

Discussion

To our knowledge, there is no similar study done in Sudan to

Table 3: Explains the mode of delivery among cases and controls which showed significant difference ($P=0.429$)

Mode of delivery	Cases number	Cases percentage	Control number	Control percentage
Vaginal delivery	96	77.4%	104	83.9%
Forceps delivery	12	9.7%	8	6.5%
EMCS	16	12.9%	12	9.7
Total	124	100%	124	100%

Table 4: The level of significance in body mass index difference in cases vs. control groups ($P=0.011$)

BMI	Control number	Control percentage	Cases number	Cases percentage
<20	4	3.2%	5	3.7%
20-25	62	50%	38	31%
25-30	21	16.8%	31	25.3%
>30	37	30%	50	40%
Total	124	100%	124	100%

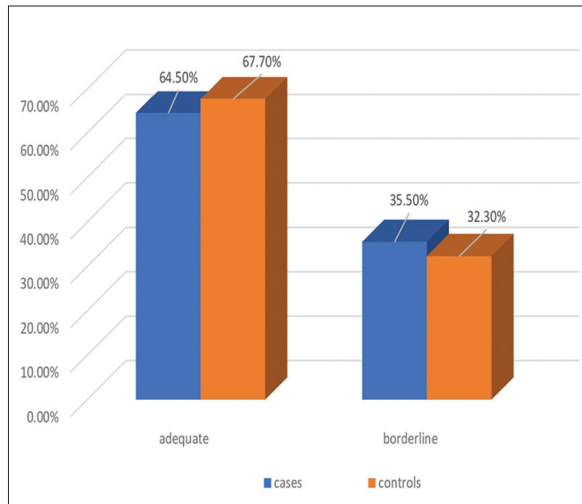


Figure 1: Shows no significant difference in percentage of pelvic adequacy in cases and control groups. (p value = 0.591)

assess the impact of unengaged head in primigravida, however when we were young doctors in 2000, our senior used to teach us X-ray pelvimetry and clinical pelvic assessment. Sometimes they operate a lot of primigravidae because of unengaged head.

In our study, 64.5% of the case group have adequate pelvis, 35.5% border line and there is no case of contracted pelvis. To our knowledge, Sule studied 268 primigravidae, 74 of them have adequate pelvis clinically and APGAR score at 1 and 5 min were significantly higher in this group;^[7] however, in our study, there is no significant difference in APGAR score.

Interestingly in our study, we observe significant difference statistically in augmentation of labor with oxytocin ($P = 0.002$). However, no study addressed the effect of oxytocin in primigravidae with unengaged head. We think that liberal use of oxytocin play role in correction of malpresentation and assist in descending of head which concluded in Mangalore that unengaged head in primi in labor required augmentation for the progression of labor.^[5]

The main message of our study is to address the effect of unengaged head in primigravidae on the mode of delivery and outcome, so there is no significant differences in the mode of delivery as in case group we obtain 77.4% vaginal delivery, 9.7% forceps delivery, and 12.9% emergency cesarean delivery, the corresponding figures respectively in the control group were 83.9%, 6.5%, and 9.7%. Lahore found that 42% delivered vaginally which is very low when compared with our study, which could be explained by liberal use of oxytocin in our study.^[8]

In our study, there is statistically significant difference in the body mass index (BMI) ($P = 0.011$) which may have an effect on the mode of delivery which approved by study done in Ireland which concluded that increased BMI is associated with reduction in the rate of vaginal deliveries, and obesity grant a two- to threefold risk of emergency cesarean delivery for

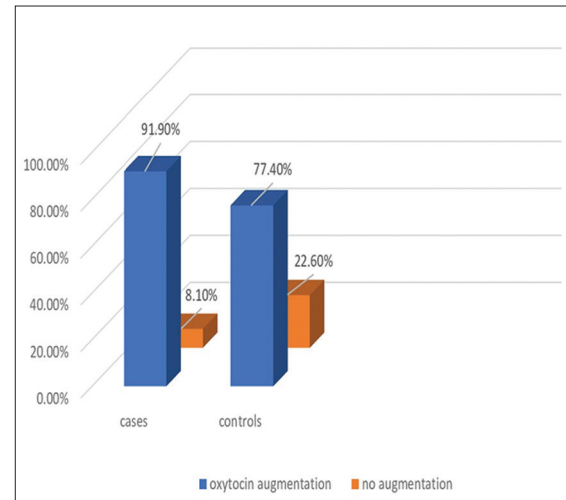


Figure 2: Shows significant difference in oxytocin augmentation among cases and control groups (p=0.002)

primigravid and multigravida as well,^[9] so we postulate that if BMI controlled we may achieve better results.

Conclusion

With good conduction of Labour there were no difference in mode of delivery and outcome in primigravidae with unengaged fetal heads.

Key Messages

Unengaged head is not a conundrum as there is no differences in the mode of delivery and outcome.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Shaikh F, Shaikh S, Shaikh N. Outcome of primigravida with high head at term. J Pak Med Assoc 2014;64:1012-4.
2. Sudhir S, Mishra S. The outcome of labour in primigravida with term gestation and unengaged head at onset of labour. Indian J Obstetr Gynecol Res 2016;3:199-202.
3. Munabi IG. Influence of the level of symphysis pubis on the time of fetal head engagement in primegravidae mothers at Mulago Hospital. 2005.
4. Knight D, Newnham JP, McKenna M, Evans S. Comparison of abdominal and vaginal examinations for the diagnosis of engagement of the fetal head. Aust N Z J Obstet Gynaecol 1993;33:154-8.
5. Agarwal P, Shetty S. Clinical Study of Primigravida With Unengaged Head in Labour at Term. Int J Women's Health Reprod Sci 2021;9. doi: 0.15296/ijwhr.2021.xx.
6. Malik S, Asif U, Asif M. PRIMIGRAVIDA; OBSTETRICAL OUTCOME; WITH ENGAGED VERSUS UNENGAGED FETAL

HEAD WITH SPONTANEOUS ONSET OF LABOUR AT TERM.
Professional Medical Journal. 2016;23(2).

7. Sule S, Matawal B. Antenatal clinical pelvimetry in primigravidae and outcome of labour. 2005.
8. Malik S, Asif U, Asif M. Primigravida; obstetrical outcome; with engaged versus unengaged fetal head with spontaneous onset of labour at term. Prof Med J 2016;23:171-5.
9. Lynch C, Sexton D, Hession M, Morrison JJ. Obesity and mode of delivery in primigravid and multigravid women. Am J Perinatol 2008;25:163-7.